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ABSTRACT

The author discusses A. Zwicky's ideas of meaning, presupposition, message, and inference and cites examples from recent literature in the study of language to support her assertion that the above ideas correspond to different levels of comprehension that must be accounted for in any complete theory of comprehension. It is argued that an adequate theory of the normal development and function of comprehension will enable educators to assess children's comprehension and to determine instructional goals and strategies more successfully. (GW)

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I DON'T UNDERSTAND WHAT YOU MEAN BY COMPREHENSION

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In a competence-performance model of the language-user, comprehension is usually regarded to be one of the two prongs of performance, the other being production. Aspects of language production, including both assessment and remediation, have for a long while dominated the efforts of the field of communication disorders to apply in an intelligent fashion the lessons learned from the study of normal language. The theme of this program is the attempt to summarize and characterize the counterpart of production, or comprehension. To set out basic definitions, we may take language to be a set of rules that relate spoken sounds to meanings, and then agree that the knowledge of these rules is the language-user's competence, while his application of the rules in language activities, like comprehension and production, is the language-user's performance. To elaborate on one stated topic, we may say that comprehension is the act of decoding the spoken sound, or unravelling the speech signal, to get at the meaning.

My purpose this morning is to point out that having said all of that, we have nonetheless left much unsaid. What is the nature of the "meaning" that is the goal of comprehension? To put it another, and longer, way, do tests in which we speak a sentence and ask a child to point to the picture it represents cover what we think comprehension is all about, or is there more to the story of what goes on when the language user, functioning as a listener, mobilizes his linguistic competence to retrieve the speaker's meaning? Well, obviously I think the latter, or I would have nothing more to say on the subject of comprehension than what we

have already heard.

The notion of levels of comprehension first became clear to me when I read George Miller's well-known paper "The Psycholinguists," originally published in 1954. Miller presents a model of the listener's operations on the spoken utterance, and organizes the possibilities, to use his own words, "from the superficial to the inscrutable." He begins with the simplest process, hearing the utterance, and goes on towards the inscrutable to suggest matching the utterance as a phonemic pattern, accepting the utterance as a grammatical sentence, interpreting the utterance as meaningful, understanding the utterance in terms of its linguistic and nonlinguistic context, and believing the utterance in terms of its relevance to himself. Miller offers six levels in all, three of which seem to have something to do with comprehension: interpreting, understanding, and believing. As he describes it, interpreting is a relatively simple matter of being able to judge whether an otherwise grammatical sentence does or does not make semantic sense, or in other words to distinguish between Colorless green ideas sleep furiously, and Healthy babies sleep soundly, the second but not the first being amenable to semantic interpretation. Understanding, in contrast, requires knowledge of the situational context; in Miller's un-women's-liberated example, a wife meets her husband at the door and says, "I bought some light bulbs today" which, given his contextual knowledge, the husband understands to mean that he is expected to replace the kitchen bulb. Finally, believing the speaker's utterance involves the listener's assignment of validity to that utterance, so that it may affect his behavior or his attitudes. Without attempting to decide whether Miller offers the right or the only levels of comprehension, we may nonetheless recognize that comprehension is a complex matter

and that we may examine which aspects of comprehension we should - or even do - attempt to deal with in our usual diagnostic and training procedures.

Building upon the foregoing introduction, I would like to call attention to a somewhat more elaborate breakdown of "aspects" of sentences and suggest the relevance of that breakdown to the problem of comprehension. The conceptualization is by Arnold M. Zwicky (1971) in a recent collection of papers on semantics. Zwicky presents the following aspects: meaning, presupposition, message, and inference. I will discuss each of these notions, and give examples from the recent literature in the study of language to support my assertion that they correspond to different levels of comprehension that must be accounted for in any comprehensive theory of comprehension and its application to clinical activity.

1. Meaning. Zwicky defines the meaning of a sentence as "that which is asserted, demanded, requested, and so forth." This aspect of comprehension is the one most closely associated with the usual clinical tests of comprehension, whether the response mode be pointing to pictures or objects, carrying out instructions, or sentence repetition. Without in the slightest suggesting that there is anything simple about meaning, I believe it is nonetheless true that this aspect of comprehension is the most studied and the best understood, and therefore is of the least interest for the argument in this paper. Briefly, the meaning of a sentence may be viewed as some combination of its referential and relational meanings (Bransford and McCarrell, in press). To comprehend the meaning of a sentence, then, the listener must know the meanings of the words, or lexical meanings, and the meanings of the relations

among the words, or what has sometimes been called grammatical meanings. So when we ask a child to "Point to the cat is behind the chair" (ACLC, NSST) or "Show me Sally has a blue dress" (Miller-Yoder), or ask him to repeat a sentence on the theory that correct imitation implies comprehension because imitation > comprehension, these techniques (whatever their other limitations) have in common that they purport to tap the child's verbal comprehension in terms of sentence meanings and do not touch upon the more abstract aspects of comprehension which we are about to consider.

2. Presupposition. The second of Zwicky's "aspects" of sentences is presupposition. "Presupposition," in philosophy, is "the expression of the conditions which must be satisfied (be true) for the sentence as a whole to be a statement, question, command, and so forth" (Langendoen and Savin, 1971); in other words, the "conditions on the correct use of the sentence" (Zwicky, 1971). Fillmore (1971) gives the example that for the sentence

(1) Please open the door.

to function as a command, the listener must, at the time the utterance is spoken, know which door is being mentioned and that that door is not open. He points out that such information cannot profitably be regarded as part of the meaning of the sentence, because in the case of the sentence

(2) Please don't open the door.

the meaning of the sentence changes but the presuppositions do not. For sentences to function as statements also involves presupposition, so that

(3) John married Fred's sister.

presupposes that Fred has a sister while

(4) Fred didn't call again.

presupposes that Fred called at least once (Keenan, 1971). While the usual concern for presupposition as an aspect of sentences is with the speaker or the conditions under which a sentence may be spoken and make sense, or work in the way it was intended, it is easy to see that the problem of comprehension may be similarly treated. That is, a listener will be able to understand a sentence as it was intended only if he shares the speaker's presuppositions. To make this point a bit clearer, consider the distinction between presuppositions and focus (Jackendoff, 1972) Jackendoff points out that in the question

(5) Is it JOHN who writes poetry?

the presupposition is that someone writes poetry, while John is the focus. Similarly, in the question

(6) Did Fred slice the bread CAREFULLY?

the presupposition is that Fred sliced the bread, and the focus is on the manner of that slicing. For this system to operate, the speaker must make certain assumptions about what information is and is not shared between the listener and himself; the shared information is the presupposition, while the not-shared information is the focus of the yes-no-questions in the examples just given. When the listener's assumptions match those of the speaker, the sentences work; if they do not match, the sentences do not work as intended and communication fails.

In the examples of (5) and (6), furthermore, it is apparent that the distinction between what is presupposition and what is focus is expressed by the mechanism of stress. I mention this rather obvious point to reemphasize that the usual accounts of meaning of sentences are inadequate to explain what the listener has to do in order to comprehend spoken sentences. In the cases of (5) and (6) the listener must use the

information conveyed by stress to figure out what the speaker assumes they both know as well as what only the listener knows.

Obviously no attempt is being made here to give a comprehensive account of the notion of presupposition as linguists and philosophers discuss it. Rather, the purpose here is to reveal a level of comprehension more abstract than that of meaning in the usual use of that term, as well as to point out the failure to take account of this level of comprehension in even our most sophisticated attempts at applied psycholinguistics in the clinical setting.

3. Message. Thus far we have considered two "aspects" of the sentence, its meaning and its presuppositions. A third "aspect" is the sentence's message(s), or how the speaker intends the sentence to be taken. Zwicky (1971) points out that sometimes the message of the sentence is quite different from its literal meaning, as in the case of (7), spoken in sarcasm:

(7) What a beautiful dress!

The "message aspect" of sentences has been seriously studied as a part of speech acts theory. The principle here is that the basic unit of linguistic communication is the speech act, rather than the word or the sentence (Searle, 1970). Speech acts theory, therefore, distinguishes between the meanings of sentences and the speech acts they may be used to perform. John Searle (1970) divides speech acts into four headings: utterance acts, propositional acts, illocutionary acts, and perlocutionary acts. Utterance acts are the simple behavior of uttering words or sentences and are part of all speech acts. Propositional acts, defined as referring and predicating, are the production of meaningful sentences,

which of course cannot occur without the simultaneous performance of utterance acts. Illocutionary acts are such actions as commanding, promising, questioning, stating, warning, requesting, etc., and imply both utterance acts and propositional acts. Perlocutionary acts add to the foregoing the notion of the effects that speech acts have upon the listener in modifying his behaviors or beliefs. To take one sentence token as a simple example, if I read the sentence (as from the blackboard) This room is very cold, I have performed an utterance act; if I speak the same words as an example of a meaningful sentence in English, I have performed a propositional act; if I say it in order to direct you to turn up the thermostat, I have performed an illocutionary act; and if you actually get up and adjust the thermostat, I have performed a perlocutionary act.

What makes this all interesting in terms of comprehension centers on the notion of the sentence's illocutionary force. Searle (1970) points out that the same propositional acts may be used in different illocutionary acts, as may occur when I say This room is very cold with the illocutionary force of a request for the listener to turn up the heat, as above, or in contrast with the illocutionary force of a directive to the listener (let's suppose I am talking to one of my children) to wear his winter pajamas. Moreover, as the foregoing examples reveal, the illocutionary force of a sentence may be direct or indirect; I might have said Turn up the heat, which would have been a direct form of request; I might have said Do you think we could have a little more heat? or even Aren't you getting chilly?, which would have been indirect requests although they have the syntactic form of yes/no questions; but instead I said This room is

very cold, which is also an indirect request although syntactically a declarative sentence. Illocutionary acts therefore depend more on the speaker's intentions and the conditions and context of the speaking than on the syntactic form of the spoken sentence. Of course Miller's (1954) example of the wife who says to her husband "I bought some new light bulbs today" is an example of the same notion; that is, that how the speaker intends her sentence to be taken may be known only from awareness of the relevant context rather than from a knowledge of sentence meaning alone.

Recently some mention has been made of the interesting question of how children learn to comprehend the illocutionary force of utterances. Marilyn Shatz (1974), for example, has studied the behavior of two-year-old children in response to imperatives like "Shut the door" (direct speech acts) and question-directives like "Can you shut the door?" or "Is the door shut?" Her data were naturalistic dialogues and accompanying nonverbal behavior between mothers and their two-year-old children. Somewhat surprisingly, she found that the number of appropriate responses did not depend on the form of the utterance, for indirect directives were obeyed about as often as explicit ones. She concluded that probably the two-year-old does not first of all learn to comprehend directives in their explicit form and later in their indirect form, but rather at the beginning uses some familiar words in the utterance and the non-linguistic context, together with mother's nonverbal clues like pointing and gesturing, to elaborate upon a very general notion like that the sentence means he is to do something about something. If Shatz is right, and her data are certainly persuasive, it seems that in the later development of comprehension the child will need to learn to distinguish utterance forms from the

illocutionary force they convey, for otherwise the child's maturing appreciation of syntax might lead him to respond to "Can you shut the door?" with "Yes" or "No" instead of by the nonverbal action of shutting the door. These simple examples once again suggest the subtlety and complexity of the listener's operations in comprehending sentences he hears. If we are to measure and train the child's comprehension of spoken language, then, we must take into account his skill in determining the speaker's intended message.

4. Inference. The fourth "aspect" of the sentence is the inferences that may be drawn from it. In the logical sense, inference is the process of arriving at conclusions on the basis of reasoning or evidence. As has been pointed out from the sentence

(8) John is taller than Fred and Fred is taller than Jim.

the listener may infer that John is taller than Jim. The relevant information from which that conclusion may be inferred may, however, appear in more than one sentence:

(9) John is taller than Fred.

(10) Fred is taller than Jim.

The information in these sentences must then be combined, or integrated, into complex ideas before the inference that John is taller than Jim may take place. What use a listener may be able to make of the information in a sentence is therefore dependent, in part, on information contained in other sentences he may have heard previously. In one of a series of experiments, Bransford and Franks (1971) showed that entire semantic ideas may be the combination or integration of information from different sentences experienced at different times. These investigators tested adult subjects' ability to "recognize" complex sentences like The ants in the kitchen ate the sweet jelly which

was on the table, when in fact they had not heard that sentence previously, what they had heard were less complex but related sentences like The ants were in the kitchen, The jelly was on the table, The ants ate the sweet jelly, and so forth. The intersting result was that these subjects tended to be more confident of their judgments of having heard the more complex sentences than the simpler ones they actually did hear. Bransford and Franks concluded that the subjects did not merely acquire sets of individual sentences, but rather integrated information from these sentences into "wholistic semantic ideas." The Bransford and Franks experiments reveal a new dimension of the processing, storage, and retrieval of sentence meaning which they have called the "abstraction of linguistic ideas." My contention is that this kind of operation is at the basis of what Zwicky and others have called linguistic inference, which similarly depends on the ability to combine and integrate material from various verbal units. It represents a highly abstract aspect of comprehension, namely, the process of deriving the meaning of a sentence and combining that information with other pieces of information similarly derived into a complex semantic idea.

To summarize, I have argued that assigning meaning to a sentence is only one aspect of comprehension. At more abstract levels of comprehension we must recognize the operations of presupposition, message, and inference. When we have anything like a complete picture of the normal development and function of comprehension, these more abstract levels will be accounted for. We will then be in a more satisfactory position to determine what we want to measure - and how to measure it - in the assessment aspects of children's comprehension, as well as to determine goals and strategies for increasing children's comprehension skills.

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